# ELEC 327: Digital Systems Laboratory (Spring 2015)

**Instructor:**
Caleb Kemere
Office: BRC 727
Office Hours: (please verify via email) Monday, Wednesday 9:00-10:00am (RMC Coffee House)
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**Lab Assistants:**
Galen Schmidt (sgs2@rice.edu)
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**Class Hours:** Tuesday, Thursday 9:25-10:50 Room AL 121 (subject to change)
Note – after spring break lectures will shift to about once per week. Students are expected to spend significant out-of-class time (~10 hours per week) working on lab assignments.

**Lab Help Sessions:** TBD, in lab (Room AL 124 – Keypad code: 1599#)

**Course website:** T
We use 3 different digital resources.

1) The primary location assignments and lecture notes (and other resources) is the course website – http://dsp.rice.edu/courses/elec327
2) We use Piazza (http://piazza.com) for announcements and for communication. If you have specific questions about course content or assignments, please post them on Piazza. As a corollary, you may find it useful to check for answers as questions arise.
3) We use Owlspace for assignment submission and for posting rubrics for peer-grading.

**Course Description:** One of the most critical aspects of modern computer systems involves interfacing with the world. This course will focus on how power-efficient user-facing systems are built.

**Objective:** Students should learn the fundamentals of embedded system programming and feel competent to design, build, and manufacture their own embedded devices. Furthermore, students should understand how embedded systems interface with external peripheral devices. Students should understand how application-specific blocks enable modern commercial devices. Finally, students should understand how to design and build their own embedded systems including printed-circuit board design and assembly.

**Outcome:** Students completing the course should be able to:

1. Identify the key blocks in an embedded system
2. Utilize software tools to program embedded devices
3. Design and implement a real-time sensor processing system
4. Utilize software tools to design printed circuit boards
5. Assemble functional integrated systems

**Prerequisites**: ELEC 220. Also useful are 240 and 241.

**Grading:** Grades will be based on: approximately eight lab modules (60%), a midterm project (15% each), and a final project (25%). Late assignments may be accepted (with penalty), **except for printed**

**circuit board orders**, where late submissions may not be accepted. Students wishing to submit late assignments should contact the instructor prior to the due date.

**Honor code**: You are encouraged to work *with* other students in ELEC327 on the labs. Each student should turn in their own lab writeup (except for midterm and final project, which should be done in pairs).